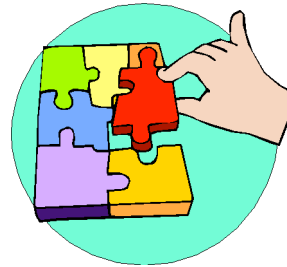


**Chapter 4: Proofs**  
**Lesson 4-3: SSS, SAS, ASA**  
**Construction Activity**



**Materials Needed:**

- Handout Packet
- pencil
- ruler
- compass
- protractor

**Directions:**

1. Construct  $\triangle ABC$  with the given information.
2. Repeat the construction on another piece of paper. Attempt to make the triangle appear different!
3. Overlap the two triangles.
4. QUESTION: Are the triangles congruent?

#1 Given:  $AB = 2$  inches ,  $BC = 3$  inches ,  $AC = 4$  inches

- Procedure:**
1. Using the ruler draw three segments with the lengths described above.
  2. Draw a line on your paper longer than the longest given segment (4").
  3. Place a point on the line closest to the left side.
  4. Using the compass, measure segment  $AC$  which is 4".
  5. Without changing the compass's length from step 4, place your compass on the point from step 3 and draw an arc that intersects the line. Make a new point at the place of intersection. This is now the new segment  $AC$ .
  6. Measure the 2" segment with the compass.
  7. Without changing the compass's length, place it on point  $A$  and make a large arc above the new segment. (The arc should drawn so that it almost touches the new segment  $AC$ .)
  8. Now measure the 3" segment with the compass.
  9. Without changing the compass's length, place it on point  $C$  and intersect the large arc drawn in #7 above the new segment  $AC$ .
  10. Where the two arcs intersect, place a new point, calling it  $B$ . Now connect point  $A$  to point  $B$ , and then connect point  $C$  to point  $B$ .

#2 Given:  $AB = 3$  inches ,  $m\angle A = 40^\circ$  ,  $AC = 4$  inches

- Procedure:**
1. On the paper draw the segments given above.
  2. Draw a line longer than the 4" segment to work with.
  3. Place a point on the line closer to the left side of the line labeling it A.
  4. Using the compass measure the 4" segment. Without changing the length of the compass, place the compass point on A and make an arc that intersects the line. Where the point of intersection is, label it C.
  5. Taking the protractor, place the center of the protractor on point A. Line the compass up with the drawn line. Make a mark where the ray should be drawn through for a  $40^\circ$  angle.
  6. Draw a ray connecting point a to the mark made in Step #5. Make sure this ray is longer than the 3" segment.
  7. Using the compass measure the 3" segment. Without changing the length of the compass, place the compass point on A and draw an arc that intersect the ray. Where the point of intersection is, label it B.
  8. Connect point B to point C.

#3 Given:  $AB = 4$  inches ,  $m\angle A = 45^\circ$  ,  $BC = 3$  inches

#4 Given:  $m\angle A = 50^\circ$  ,  $AC = 4$  inches ,  $m\angle C = 40^\circ$

#5 Given:  $m\angle A = 60^\circ$  ,  $m\angle B = 40^\circ$  ,  $m\angle C = 80^\circ$